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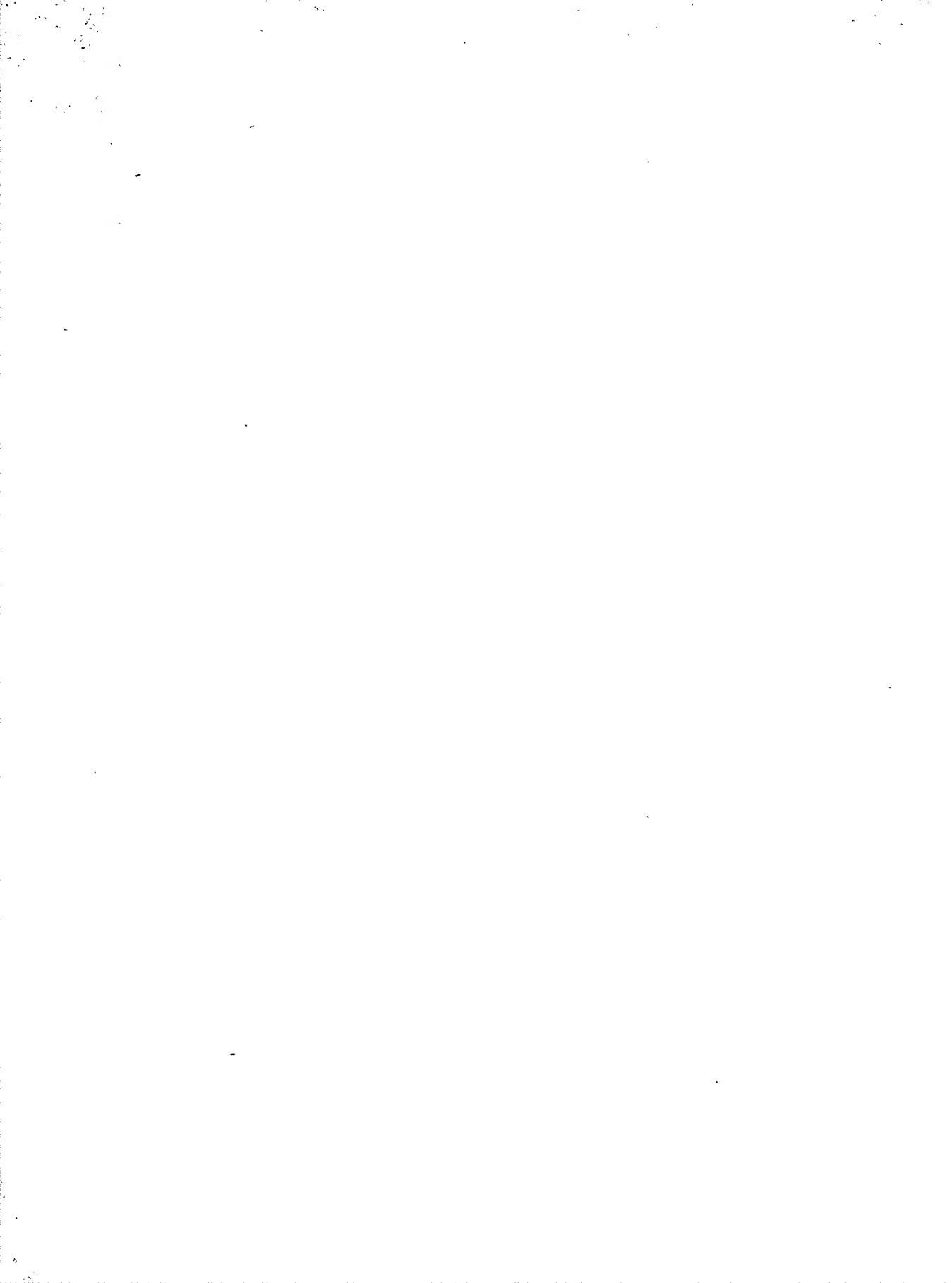
A PRELIMINARY ANNOTATED LIST

OF THE MAMMALS OF

MANITOBA, CANADA

by J. Dewey Soper

Chief Federal Migratory Bird
Officer for the Prairie Provinces



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Compiled for Office Purposes Only
and not for Publication

Department of Mines and Resources
Lands, Parks and Forest Branch,
National Parks Bureau,
Winnipeg, Man.

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ADDRESS REPLY TO
CHIEF FEDERAL MIGRATORY
BIRD OFFICER.



CANADA

DEPARTMENT
OF
MINES AND RESOURCES
LANDS, PARKS AND FORESTS BRANCH

PLEASE QUOTE
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FORWORD

The following annotated list of the mammals of Manitoba has been compiled for educational purposes in manuscript form. The need for such a list, brought up-to-date as concerns nomenclature, occurrence and distribution, was first felt by the Manitoba Museum; its Director, Mr. L.P.S. Morris-Elye, voiced the desirability of such a work for general reference purposes, especially as an aid to the identification of incoming mammal material; locality is often a valuable, if not a conclusive, clue to the sub-species involved. The list has also been designed for the use of the Zoological Department of the University of Manitoba and for personal office reference in respect to animal and zonal relationships, distribution, etc.

Every effort has been made to be as accurate and comprehensive as existing data and comparatively brief annotations permit. It is especially brought to the attention of those concerned that while marked advances have been made in the mammalogy of the province since the time of Seton, only a good foundation has as yet been laid. Multitudes of problems remain to be worked out. In many instances there is a dearth or complete lack of necessary study material; series of specimens are required from numerous localities before questions on many points can be answered.

Statements of range in the accompanying list are based on present conceptions and are not final. They are to be regarded as suggestive, with a design to help, but susceptible to modification with the advance of knowledge. Indeed, very

extensive inquiry has still to be carried out in regard to local and regional distribution of practically all the lesser quadrupeds. Great Manitoban areas, to this day, have not been worked by naturalists, with the result that absolutely nothing is known in such districts respecting the smaller mammals. Frequently, to dip but casually into some tracts of country is to unearth unexpected results—perhaps even a race of mammal new to the province.

The science is ever in a state of flux, both as regards nomenclature and the gradual accumulation of information leading to modification of earlier ideas. Several subspecies, for example, have within recent years been added to the Manitoba records. Almost certainly others will be discovered as provincial investigations proceed. The relatively slow advance is accounted for by the fact that no comprehensive and well sustained province-wide survey of the mammalia has ever been attempted. Unlike the situation regarding ornithology, the out-and-out mammalogist is comparatively rare; consequently, data accumulates at a snail's pace in relation to so vast a territory. The occasional expedition at long intervals has added greatly to our store of knowledge, but isolated facts require co-ordination over wide areas. Among the tracts that particularly need investigation are: the Pre-Cambrian country along the eastern side of the province from Lake of the Woods to Hudson Bay; the whole of the vast northwestern part of the province north and west of the Hudson Bay Railway; and Duck and Porcupine Mountains.

A proper comprehension of animal distribution is greatly aided by reference to the faunal life zones. This procedure has been adopted in the present paper. A small coloured sketch map showing the zones in Manitoba has been prepared and attached to the paper for ready reference. A short list of useful publications is also provided at the back. In sequence of species and nomenclature the list of species follows H. K. Anthony's Field Book of North American Mammals (1928), except in a few cases where the terminology has since been altered through an increase of knowledge in systematic mammalogy. It may be added that Anthony's work is based on Miller's List of North American Recent Mammals, 1925, United States National

Museum Bulletin No. 128, 1924; this is a particularly valuable work, which among other things, gives the progressive changes in nomenclature and a list of type locality.

Finally, the following facts may be of some interest. In 1909, Seton listed 62 species and subspecies of mammals for the province, this being of course, the number of different mammals then known in the old Manitoba which extended north only to the 53rd parallel of latitude. The present list stands at 104. This is an addition of 42 items. The majority of these became automatically included simply because the province was enlarged and many Arctic and sub-Arctic mammals were embraced by the change in geography. On the other hand, however, numerous geographical races have been discovered in the old, southern portion of the province which were not known to exist there 30 years ago.

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ORDER INSECTIVORA

1. STAR-NODDED MOLE. Condylura cristata (Linnaeus).
This mole has been recorded from several points in southeastern Manitoba, east of, and in the Red River Valley, and also to the northwest as far as Riding Mountain National Park. There are apparently no records for the plains to the south. The southeastern extremity of Riding Mountain is evidently the western limit of range. This is the only mole recorded from the Prairie provinces.

2. MASKED SHREW. Sorex cinereus cinereus (Kerr).
Cinereus is the common small shrew of the coniferous woods, with a limited distribution in the adjoining aspen grove, or parklands belt. It ranges from southeastern Manitoba northwest to Riding Mountain and north in the Canadian Zone to about the lower limits of the Hudsonian Zone. It reaches Hudson Bay in at least the vicinity of York Factory. In some sections of the country it is relatively common.

3. HAYDEN MASKED SHREW. Sorex cinereus haydeni (Baird).
This race replaces cinereus over the greater part of southwestern Manitoba south of the Canadian Zone. It is more an animal of the southern parklands and prairies and is known to occur from the Spruce Woods Forest area southwardly to Turtle Mountain and the junction of Antler and Souris Rivers. Parts of its range verge upon semiarid conditions. Ordinarily they are not very common.

4. AMERICAN SADDLE-BACK SHREW. *Sorex arcticus arcticus* Kerr.

An animal of the Canadian Zone which habitually inhabits black spruce-sphagnum bogs. It ostensibly ranges in the coniferous forest belt from about latitude 50° in the east, to Riding Mountain and north to about the latitude of Swampy and Kiesassing Lakes (55°30' N.). It occurs sparingly on Turtle Mountain. Rarely is the animal found locally common and ordinarily specimens are difficult to secure. In suitable situations of southeastern Manitoba, *arcticus* is replaced by the subspecies *S. a. laricorum*.

5. SOUTHERN SADDLE-BACK SHREW. *Sorex arcticus laricorum* Jackson.

This southern race of the "saddle-back" ranges northwardly into Manitoba from Dakota, Minnesota, etc., as far, at least, as Carberry, Spruce Woods Forest Reserve and Aweme. As yet, little is known about its Manitoba distribution.

6. COMMON WATER SHREW. *Sorex palustris palustris* (Richardson).

Sparingly distributed in the Canadian Zone woods from southeastern localities north and northwest to a point above the great lakes in the central part of the province. It occurs in isolated Canadian Zone "islands" as far southwest as the Spruce Woods Forest Reserve district. The species appears never to be common and trapping results usually suggest rarity.

7. HOY PIGMY SHREW. *Microsorex hoyi hoyi* (Baird).

It is evidently this form of the Pigmy Shrew which occurs erratically in the extreme southern part of Manitoba over prairie-parklands territory. Specimens from the latitude of Winnipeg and Brandon may be regarded as intergrades between *hoyi* and *intervectus*, but nearer to the latter. The animal is evidently never very common.

8. INTERRADIATE PIGMY SHREW. *Microsorex hoyi intervectus* Jack-
son.

Little data is available on this race in Manitoba. On geographical grounds, it would be assumed to occur in a combined belt of upper Transition and Canadian Zones across the province in a northwestwardly direction from the Ontario border. Limits of range are unknown. Specimens from the

Winnipeg area are apparently intergrades with hoyi; those from Riding Mountain and other Canadian Zone districts are, in all probability, interveotus. The animals are usually of very sparing occurrence.

9. KAMATIN PIGMY SHREW. Microsorex hoyi alnorum (Freble).

This race, taken in 1900 by Edward Freble at Robinson Portage (northeast of Norway House) and the nearby Echimmaish River, is known only from this district. Robinson Portage is the type locality. The proposed race was based on but two specimens, one of them badly damaged and almost worthless for study. If, after a large series of specimens from central Manitoba are eventually secured, and the race proves to be a valid one, it will then be found to intergrade with interveotus along some line to the south.

10. LARGE SHORT-TAILED SHREW. Blarina brevicauda brevicauda (Say)

Apparently not a common mammal, but specimens can easily be secured in some localities, while it is either scarce or ostensibly absent in others. It ranges in the province from southeastern sections westward to Turtle Mountain, Spruce Woods Forest Reserve, and Riding Mountain. There is some possibility of intergradation with B. b. talpoides in far eastern localities bordering upon Ontario. An insufficient number of specimens in comparable pelage are available at present to clarify this point.

ORDER CHIROPTERA

11. LITTLE BROWN BAT. Myotis lucifugus lucifugus (Le Conte).

Occurs throughout the southern part of the province, under suitable conditions, north to at least Riding Mountain. Northward limit of range unknown. It is locally common.

12. TROUT LAMP BRUSH BAT. Myotis keenii septentrionalis (Trousseau).

Two specimens were secured by Stuart Griddle from Souris in August, 1931. These are the first and only records for Manitoba (See Can. Field-Nat., Nov. 1932, p.188). .

13. SILVER-HAIRED BAT. Lasionycteris noctivagans (Le Conte).

Generally, though apparently very sparingly distributed in the southern part of the province, in both Transition and Canadian Zones.

14. COMMON BROWN BAT. Myotis fuscus fuscus (Beauvois).
Sparingly recorded from points in southern Manitoba, ranging through Transition Zone parklands into the southern part of the Canadian Zone. Its northward limit in the coniferous forest belt is not at present known.
15. NORTHERN RED BAT. Myotis borealis borealis (Muller).
Occurs in southern districts, ranging north at least as far as the lower limits of the coniferous forest belt, or Canadian Zone. Comparatively little information is available.
16. HOARY BAT. Myotis cinerea (Beauvois).
Ranges throughout the southern part of Manitoba, north into the Canadian Zone, but the limit of distribution in that direction is not yet determined. Said by Seton (1909) to be "somewhat common"; such may be the case locally, though, on the whole, the species is rarely encountered.

ORDER CARNIVORA

17. BLACK BEAR. Ursus americanus americanus (Pallas).
Still fairly common in the greater wilderness areas of the Canadian Zone from the whitewell and Sandilands Forest Reserves north and northwest to central Manitoba. Approaching the Hudsonian Zone it rapidly becomes less numerous. It ranges to within a comparatively short distance of the coast in at least the York Factory district.
18. BIG PLAINS GRIZZLY BEAR. Ursus horribilis horribilis Ord.
Formerly occurred in southwestern Manitoba, including Pembina and Turtle Mountains, and the Brandon and Tiger Hills. Has probably been extinct in this part of its primitive range for over a century.
19. POLAR BEAR. Thalarctos maritimus maritimus (Phipps).
The Polar Bear inhabits, or formerly inhabited the Manitoban coast, from the Northwest Territories south to and beyond the lower boundary of the province at East Pens. It is of more frequent occurrence north of Port Churchill, but the species is nowhere as common on the west coast of Hudson Bay as in earlier times.
20. EASTERN RACCOON. Procyon lotor lotor (Linnaeus).
At one time the Raccoon was fairly well distributed in

southern Manitoba, ranging from southeastern localities westward to Pembina and Turtle Mountains and north to Riding Mountain. By 1909 it had become very rare when Seton (1909) stated that it was then confined to the banks of streams that were heavily wooded in the southwestern part of the province. The animal was not uncommon on Turtle Mountain in 1927. On Riding Mountain it was exterminated about 30 years ago.

21. **HUDSON BAY MARTEN.** *Martes americanus abieticola* (Preble).

This is the race which occurs in central and northern Manitoba and extends west to meet the range of actuosa somewhere in northern Saskatchewan, or Alberta. Evidently at some point in east-central, or southeastern Manitoba the present race meets the range of typica americana. The latter is the race which A. R. Cahn (1937) assigns to the "Ueticco Provincial Park of western Ontario. In some of the remoter areas the Marten still occurs in fair numbers, but it is now rare, or exterminated over much of its former range. It is confined to the coniferous forests of the Canadian Zone.

22. **FISHER.** *Martes pennanti pennanti* (Erxleben).

The species formerly ranged throughout the coniferous forests of the province, from the southeastern extremity, north and northwest through the Canadian Zone to about the southern limits of the Hudsonian Zone; at one point, the latter obtains in the general latitude of Southern Indian Lake. For a long period the Fisher has occurred only very sparingly in the wilder districts and now, in many parts of its primitive range, it has been completely wiped out.

23. **BONAPARTE WEASEL.** *Mustela cicognani cicognani* Bonaparte.

Cicognani is the common weasel of the northern park-lands, and evergreen forests of the Canadian Zone. Its range covers the greater part of the province, from the extreme southeast, in a northwesterly direction to Riding Mountain and north to the stunted spruce woods of the Hudsonian Zone; it also reaches the vicinity of the coast from about Fort Churchill southward to James Bay. Northern limits are not defined, but it grades insensibly into M. G. richardsoni of the Hudsonian Zone. During some years cicognani is locally quite common, large numbers being trapped for the fur trade.

24. **RICHARDSON WEASEL.** *Mustela cicognani richardsoni* (Bonaparte)

The range of this race is given as "Found in the

Hudsonian timber belt from Hudson Bay to the interior of Alaska and British Columbia." Within this zonal condition it is doubtless richardsoni which occupies the extreme northern part of the province northwest of Port Churchill. To the south it intergrades with cicognani, which also penetrates for some distance into the Hudsonian Zone. On the north is the Arctic, or Tundra weasel (Mustela arctica arctica Morriam); there is no conclusive evidence that the latter occurs in Manitoba, but a few wanderers may reach the small area of Arctic coast and tundra in the extreme northeastern corner of the province.

25. LEAST WEASL. Mustela rixosa rixosa (Bangs)

Comparatively little is known of this diminutive weasel, but it apparently ranges widely, if sparingly, over most of the southern two-thirds of the province. It is found in both Transition and Canadian zones. It would appear fairly certain that it inhabits the coniferous forest north to at least the southern border of the Hudsonian Zone which roughly runs from 55° N. latitude northwest through Southern Indian Lake. It may even penetrate the latter zone to come near the coast in the latitude of York Factory. In some districts the species is more numerous than formerly supposed, but they accumulate very slowly in scientific collections.

26. LONG-TAILED WEASL. Mustela longicauda longicauda Bonaparte.

The Long-tailed Prairie weasel is widely distributed on the Great Plains and was formerly common in southern Manitoba where true oeneptrian conditions prevailed. Its height of abundance was reached in the southwest, which provided the most suitable habitat. While typical of the treeless plains and prairies, the animals also roamed for some distance into the more open type of parklands, or aspen grove country, along the northern limits of its range. Locally, the species has been seen as far north as southern Riding Mountain—in Saskatchewan, much farther north. It is not now nearly so abundant as in former times, but in some years it is still not uncommon.

27. MISSISSIPPI VALLEY MINK. Mustela vison letifera Hollister.

This light brown southern form apparently ranges, or did range, into the extreme southwestern corner of the province along the Antler and Souris Rivers. Bailey (1926) records it from the Souris Valley of North Dakota. It is apparently letifera which occurs on Turtle Mountain, though conditions

there are predominantly those of the Canadian Zone; Lower Transition, or Upper Sonoran, is normally the characteristic environment of this race. On Turtle Mountain, in 1927, it was said to be fairly common around the many small lakes of the plateau.

28. **HUDSON BAY MINK.** Mustela vison lacustris (Freibl).

This is the common dark mink of the fur trade which chiefly inhabits the dense coniferous forests of the north. Its range almost coincides with the Canadian Zone, where in any event it reaches its typical colouration and centre of abundance. From the southeastern extremity of the province it ranges north and northwest to Hudson Bay and Great Bear Lake. It is now absent over much territory which was once occupied by the species in abundance. Fair numbers still obtain in many of the remoter districts.

29. **COMMON WOLVERINE.** Gulo luscus (Linnaeus).

Formerly distributed over the greater part of the coniferous forest tract of Manitoba, from the southeastern extremity, north to Hudson Bay and the Northwest Territories. Its habitat embraced Canadian and Hudsonian Zones and southern parts of the so-called Arctic barren grounds. In most sections of the country it has either become very rare, or exterminated.

30. **CANADA OTTER.** Lutra canadensis canadensis (Schreber).

Otters at one time inhabited practically all of the evergreen forest belt of the province from the southeast corner north to Hudson Bay and the Northwest Territories. Once comparatively common, it is now, over large areas, greatly reduced in numbers or seen no more. In recent years, there are a few southern records of occurrence in the Canadian Zone of Whiteshell Forest Reserve and Riding Mountain National Park.

31. **NORTHERN PLAINS SKUNK.** Mephitis mephitis hudsonica (Richardson).

On the whole, this species is relatively common and in some localities abundant. In distribution, it occupies the greater part of the southern two-thirds of the province, embraced by both Transition and Canadian Zones. The animals may be abundant in either, but incline to reach maximum numbers in the parklands country and the intermediate territory of mixed poplar-coniferous woods lying along the southern border of the Canadian Zone. It is found from the prairies of the southwest to at least the latitude of Oxford Lake and the central Churchill River.

32. COMMON BADGER. Taxidea taxus taxus (Schreber).

The Badger is an animal of the prairies and Great Plains and, while it occurs in semi-open parklands country, it was more common to the south. The species does not occur in heavy woods. In earlier days it inhabited all of the prairie region of southern Manitoba, optimum conditions being reached in far western and south-western localities. With the advance of settlement the animals were gradually decimated, until today they have become very rare in most areas.

33. NORTHERN PLAINS RED FOX. Vulpes fulva regalis Merriam.

This fox is widely distributed over the province, occupying, in fact, approximately three-quarters of the area. It is at home, alike, in deciduous woods of the Transition Zone, or the coniferous forests of the Canadian, and ranges, as well, deeply into the Hudsonian Zone. Animals reach the vicinity of the Hudson Bay coast as far north at least as Fort Churchill and a few have even been captured on the Arctic tundra. In peak years the animals are still abundant in the northern wilderness, though they have become much scarcer in settled districts of the south.

34. KIT FOX. Vulpes velox habes Merriam.

Formerly occurred in fair numbers in the grasslands territory of southwestern Manitoba. It had already become exterminated by the beginning of the century, if not earlier. The species is now found only very rarely in the wilder parts of the Missouri Coteau of southern Saskatchewan, west of Big Muddy Lake.

35. CONTINENTAL ARCTIC FOX. Alopex lagopus innuitus (Merriam).

These little foxes of the bleak Arctic shores and interior tundras ordinarily occur along the coast of Manitoba from near Port Nelson north to and beyond the northern boundary of the province. They have been recorded as far southeast as Severn River and during very severe winters have been known to wander inland for a distance of 150 miles or more. There is one old and remarkable record of occurrence for the vicinity of Norway House.

36. NORTHERN COYOTE. Canis latrans latrans Say.

This animal, commonly referred to as "brush wolf" ranges over very substantial areas of southern Manitoba from the wilds of the extreme southeast for an undetermined distance to the north. It is presumed to be this race which occurs on Turtle Mountain. Coyotes have been reported from Riding, Duck, and Porcupine Mountains and intermediate localities. In

some districts it is common. Though much reduced in settled communities, it has an almost uncanny ability to survive persistent hunting and trapping. It is problematical if Canis latrans nebrascensis Merriam ever ranged as far east as the dry prairies of southwestern Manitoba, though this is the race which inhabits the semi-arid plains of southern Saskatchewan and Alberta.

37. GREAT PLAINS WOLF. Canis lupus nubilus (Say).

This animal, sometimes referred to as the "Lobo Wolf" formerly roamed an immense tract of the Great Plains from Kansas, Nebraska and Wyoming north to southern Alberta, Saskatchewan and Manitoba. The habitat, as the name would imply, was basically the treeless plains and prairies (mostly semiarid) and, for this reason, the animals were probably more common in primitive times in the dryer southwestern part of the province. They no doubt also occurred, however, throughout the grasslands areas north and east to the coniferous forests. The race is now practically extinct in Canada.

38. NORTHERN GRAY WOLF. Canis lupus occidentalis (Richardson).

The Timber Wolf has a wide range over the province, practically coinciding with the great coniferous forest belt of the Canadian and Hudsonian Zones, from southeastern localities northwest to Duck Mountain and north to meet the range of Canis lupus tundrarum. In many sections where occidentalis was formerly in considerable numbers, it has now completely disappeared. This is especially true in respect to southern districts, with the advance of settlement, including even the adjacent wilderness of Riding Mountain. In some parts of the Far North the Gray Wolf still occurs in fair numbers. On the south it ostensibly intergrades with the paler plains race Canis lupus nubilus, and to the southeast with Canis lupus leucurus. As yet there is no proof that the latter enters southeastern Manitoba.

39. WHITE TUNDRA WOLF. Canis lupus tundrarum Miller.

The occurrence of this wolf in Manitoba is probably limited, being perhaps of an accidental or casual character. It can be looked for along the barren, Arctic coastal belt in the northeastern extremity of the province north of Port Churchill. The race is locally common in the adjoining Northwest Territories and may intergrade with C. l. occidentalis for some distance south in the Hudsonian Zone. On this score very little is known at present.

40. CANADA LYNX. Lynx canadensis canadensis Kerr.

In the early days the Canada Lynx was found throughout

the coniferous forest areas of the province north to the limit of trees. It is essentially an animal of the Canadian Zone, but it has been known to wander widely in the aspen grove belt along the southern limits of its normal environment. It is now, of course, very rare or exterminated over very extensive tracts in the southern parts of the province. Locally it is still numerous in the northern wilderness, especially during peak years in its periodic cycle of abundance.

ORDER PINNIPEDIA

41. ATLANTIC HARBOR SEAL. *Phoca vitulina concolor* (De Kay).

Of local occurrence all along the Hudson Bay coast of the province. The animals are usually met with in larger numbers in the mouths of rivers at the sea-coast, such as at the Hayes, Nelson and Churchill Rivers. Occasionally they take up quarters in fresh water lakes which are connected by rivers with the sea. While widely distributed in Hudson Bay and the Arctic, the animals are ordinarily not very common.

42. RINGED SEAL. *Phoca hispida* Schreber.

Little is known about the general occurrence of this seal and its southern limits of distribution along the Manitoba coast. It appears, however, that it is found as far south, at least, as York Factory; many years ago it was fairly abundant from Cape Churchill northward. In 1900 Freble (1902) found the species rather common in the vicinity of Port Churchill. In higher latitudes it is often the predominant member of the pinnipedia and locally reaches a state of abundance.

43. HARP SEAL. *Phoca groenlandica* Krüleben.

The Harp Seal is of only casual occurrence along the coast of Manitoba and apparently this is true of all the west coast of Hudson Bay. It has been recorded at various places from Churchill north. Its centre of abundance is in neither Hudson Bay, or Strait, but in the North Atlantic and along the Labrador coast to Port Burwell.

44. BEARDED SEAL. *Eriognathus barbatus barbatus* (Krüleben).

The species has occurred with fair regularity along the west coast of Hudson Bay, including that sector embraced by the Province of Manitoba from East Pene to the 60th parallel of latitude. Many have been killed in the vicinity

of York Factory, Fort Nelson and Port Churchill. The animal is locally more abundant to the north and in some localities it is common.

45. ATLANTIC WALRUS. Odobenus rosmarus (Linnaeus).

This huge animal has apparently never been common along the Manitoba coast, probably because of its general character, tidal and otherwise. It formerly occurred in small numbers, however, and was known to casually range as far south as Cape Henrietta Maria. The nearest centres of abundance were the Belcher Islands and Roos Welcome. Individuals and small groups which appeared off the coast from Fort Nelson to Chesterfield Inlet were undoubtedly from the breeding grounds of the latter region.

ORDER RODENTIA

46. CANADA WOODCHUCK. Tamias canescens (Krebsen).

Distributed over practically the whole of Manitoba covered by trees or brush, north to at least the latitude of York Factory and Southern Indian Lake, while in some localities the animal is not uncommon in the aspen grove belt, it seems to reach its peak of abundance in the southern parts of the Canadian Zone. It is locally quite common from Whiteshell Lake north through Whiteshell Forest Reserve and in Riding, Duck, and Porcupine Mountains. The species is much less numerous in the northern portion of its range than farther south. In parts of southeastern Manitoba it is actually abundant. Woodchucks were noticeably more in evidence across the Prairie Provinces, in the summer of 1940, than probably ever before recorded.

47. RICHARDSON GROUND SQUIRREL. Citellus richardsonii richardsonii (Audubon).

The "flickertail" is a very characteristic animal of the shortgrass plains, but it also occurs in the parklands belt and in isolated prairies, here and there, to the southern fringe of the Canadian Zone. In Manitoba, it reaches its maximum abundance in southwestern districts and in diminishing numbers ranges east to the vicinity of Red River, south of Morris. From near the latter point, the practical eastern limit of distribution extends northwest to Portage la Prairie and the southwest angle of Lake Manitoba. Locally the animals occur north to Riding Mountain and the vicinity of Dauphin and, farther west, to about

the Swan River Valley. In Canada, the maximum numbers per unit area are found in the semiarid country on the Missouri watershed of southern Saskatchewan and Alberta.

48. STRIPED GROUND SQUIRREL. Citellus tridecemlineatus tridecemlineatus (Mitchell).

This species has a wider distribution in the province than richardsonii, but it never attains to the localized abundance of that species. It occurs from Whiteshell Lake and Sandilands Forest Reserve north to Winnipeg and Joelandie Rivers and west into Saskatchewan. It is found locally to Riding Mountain and Gilbert Plains and, farther west, to about the latitude of Swan River Valley. In parts of the Winnipeg-Portage la Prairie-Brandon plains (Alleghanian portion of the Transition Zone) the species is quite common, but over large tracts of its more western (actual or potential) range in Manitoba, it is scarce, or absent. It seems to be locally most numerous east of the range of richardsonii and scarce where the latter is most abundant to the west and southwest. The animal is much less numerous than in primitive times as cultivation of the land has destroyed much of its former range.

49. FRANKLIN GROUND SQUIRREL. Citellus franklinii (Sabine).

South of Whiteshell Forest Reserve, this species ranges from points in western Ontario over a broad band of country west and northwest beyond the western limits of Manitoba. It is essentially an animal of the Transition Zone, where it is most numerous, but it also occurs in parts of the lower portion of the Canadian Zone. In some sections of the latter, as for example in the southeastern extremity of the province, and portions of Riding Mountain, it may be common, or even abundant. From lower Winnipeg River it ranges brokenly in a general northwest direction to about the latitude of Swan River Valley. South of this the species inhabits practically all areas of the aspen grove, or aspen-oak belt, to the International Boundary in Pembina and Turtle Mountains and the Souris and Antler River Valleys.

50. LITTLE BOUNTIFUL CHIPMUNK. Eutamias minimus borealis (Allen).

Occurs over a very wide range in Manitoba west of Red River, throughout Pembina and Turtle Mountains, north in Riding, Duck and Porcupine Mountains and locally over adjacent lowlands to about the latitude of Oxford and Granville Lakes (55° - 56° N.). It is fundamentally a creature of the Canadian Zone where it is the commonest, but it also

occurs widely, if erratically, in the Alleghanian portion of the Transition Zone. One normally associates this species with a spruce-aspen poplar environment.

51. LAKE SUPERIOR CHIPMUNK. Tamias minimus jacksoni Howell.

This race replaces typical borealis in coniferous forest tracts of the southeastern part of Manitoba east of Red River. Limits of range northward and to the east of Lake Winnipeg is unknown. Specimens referable to jacksoni have been taken at Whiteshell Lake, Sandilands and Whiteshell Forest Reserves, Cedar Lake (Vivian) and the lower Winnipeg River. Along the western limit of distribution, as indicated above, specimens are not typical and show intergradation with borealis.

52. GRAY EASTERN CHIPMUNK. Tamias striatus griseus Mearns.

Griseus locally occupies a considerable territory in southeastern Manitoba, ranging from far eastern localities (Whiteshell Forest Reserve, and Whiteshell Lake?), lower Winnipeg River and Icelandio River, westward to Sprucewoods Forest Reserve, Pembina and Turtle Mountains and north to Riding Mountain and Dauphin. Over extensive tracts contained within this general range the animals are very scarce, or totally absent. For the most part they appear to be very localized and widely scattered. The species is evidently seldom common in Manitoba localities, though it does reach a moderate abundance in parts of the Red River Valley. It is also said to occur locally in fair numbers in Pembina and Turtle Mountains and in the Aweme-Brandon district. In the Manitoban part of its range it is observed to favour both the Canadian Zone and the Alleghanian portion of the Transition Zone.

53. HUDSON BAY RED SQUIRREL. Tamiasciurus hudsonicus hudsonicus (Erxleben).

This species inhabits practically the whole of the province except certain southwestern plains districts that are treeless, or which support only poor aspen poplar woodlands beyond the western limits of the Alleghanian subdivision of the Transition Zone. In some parts of the south its distribution is spotty, but it occurs in the Red River Valley and Spruce Woods Forest Reserve; it may also be this Red Squirrel which occurs in Pembina and Turtle Mountains, perhaps intergrading with T. h. minnesotae. It is to be found in varying numbers everywhere in the coniferous woods

of the Canadian Zone from the southeastern part of the province to Riding Mountain and north to the upper reaches of the Hudsonian Zone. In many places it approaches to within a short distance of Hudson Bay as far north as Churchill. In common with the trend of the tree limit, its northernmost distribution from here is in a northwestwardly direction. To the west it meets the range of T. h. proboscis.

54. NORTHERN GRAY SQUIRREL. Sciurus carolinensis leucotis (Gapper)
 Seton (1909) does not list the Gray Squirrel in his account of the mammals of Manitoba, so it would appear that it is but a comparatively recent addition to the fauna of the province. It is now apparently known only from points in or near the Red River Valley north, at least, to about Lockport. For many years it has been common locally along this stream, one centre of relative abundance being from Winnipeg north for a distance of several miles. The species would appear to have spread into Manitoba by way of the heavy mixed woods of the Red River Valley from Minnesota. If this should be true, it would seem that the Manitoba animals are S. c. hypophaeus; however, as yet there is no proof and the two races are difficult to differentiate.
55. HUDSON BAY FLYING SQUIRREL. Glaucomys sabrinus sabrinus (Shaw)
 Occupies the Canadian Zone and some of the Transition Zone portion of the province east of Red River, north-west ostensibly to Riding and Duck Mountains, northward to Hudson Bay, and locally at least to the lower limits of the Hudsonian Zone. It seems to be nowhere very common, but owing to the nocturnal habits of the species it is apt to be more numerous than suspected. On the whole, it is difficult to secure specimens for scientific purposes. While the range is fairly well known in its broader aspects, relatively few specimens have been taken by naturalists in the province. Specimens from Winnipeg and Selkirk have been referred to G. s. sabrinus. G. s. canescens territory lies nearby to the west; intergrades may be expected between Winnipeg and Portage la Prairie.
56. PALE FLYING SQUIRREL. Glaucomys sabrinus canescens Howell
 Type locality: - Portage la Prairie. Relatively little knowledge has been gained about this race in the province, but it is known to occupy the Assiniboine River Valley from

Portage la Prairie west to at least Treesbank and south through the Pembina Mountains into North Dakota. It is probable that the northwestern extremity of the Pale Flying Squirrel's distribution reaches the lower southern and eastern slopes of Riding Mountain, but no definite conclusion on this score has yet been reached. So far as known, the range of rufescens in Manitoba lies wholly within the Alleghanian subdivision of the Transition Zone.

57. SASKATCHEWAN POCKET GOPHER. Thomomys talpoides talpoides

(Richardson).

This race occurs in Manitoba north of the range of T. l. rufescens—that is, approximately north of latitude 50 degrees. Its local and regional distribution has not, as yet been well worked out, but it is known to occur as far north at least as Sturgis (Sask.) and the Swan River district. Green (C.P.-H. Oct. 1932) does not definitely assign his specimens from Riding Mountain National Park to rufescens or talpoides, but they are apt to be referable to the latter subspecies. In places they are common in the low country between the great lakes and Riding and Duck Mountains.

58. DAKOTA POCKET GOPHER. Thomomys talpoides rufescens (Wied.).

Distributed over the greater part of southern Manitoba which falls within both the humid (Alleghanian) and dryer sections of the Transition Zone. It occurs in purely campestrian territory as well as in the aspen grove belt between the grasslands of the south and the Canadian Zone region to the north and east. In extensive tracts the animals are scarce or absent, but in other parts again they are very common. West of Winnipeg, the species may be roughly said to occupy the country south of the 50th parallel of latitude.

59. MAXIMILIUS POCKET MOUSE. Perognathus fasciatus fasciatus Wied.

This beautiful little quadruped is confined to the southwestern part of the province. It ranges from the extreme corner, in that direction, northeast to about the west end of Spruce Woods Forest Reserve and roughly due west from here into Saskatchewan. The animal occurs in both Upper Sonoran and dryer parts of the Transition Zones, the latter, only, being represented in southwestern Manitoba. Within this occupied territory the Pocket Mouse inhabits only those localities that are sandy, or have very light soils, and for

this reason its occurrence is irregular, with widely scattered communities. In some restricted localities it is common. Considerable divergence of habitat obtains, as it is found from semiarid, treeless situations of the south, northward into grasslands of the aspen grove belt.

60. CANADIAN BEAVER. *Castor canadensis canadensis* Kuhl.

Formerly distributed over nearly the whole of Manitoba, where suitable streams existed, from the International Boundary north to nearly the limit of trees. It is thus seen to range throughout the Transition and Canadian Zones and well into the Hudsonian Zone. The animal has been exterminated over large areas, but in recent times, with more drastic regulations (since about 1905 and later) it is again on the increase in many widely-separated localities. Within recent years its presence in the South has been noted in Turtle Mountain, the Antler and Souris Rivers, south-central reaches of the Assiniboine River and Spruce Woods Forest Reserve. It was once trapped out on Riding Mountain, but after a number had been introduced following incorporation of most of the territory in a national park, the species is steadily increasing. Farther north and east in the coniferous forest belt it is widely distributed still, but far below primitive numbers. It formerly was found to within a few miles of Hudson Bay, as far north as Churchill.

61. MAXIMILIAN CRICKHOPPER MOUSE. *Onychomys leucogaster leucogaster* (Gied).

The Crickhopper Mouse is distributed in Manitoba only in the southwest over the dryer sections of both treeless plains, and the prairie-parklands farther north and east. The eastern limit appears to be in the vicinity of Spruce Woods Forest Reserve where Griddle (1929) reports the animal "tolerably common." The northernmost record in the province is that of Green (1932) who took specimens along the southern margin of Riding Mountain National Park.

62. HUDDONIAN WHITE-FOOTED MOUSE. *Peromyscus maniculatus maniculatus* (Sagner).

The race maniculatus occurs only in the coniferous forest belt of eastern Manitoba where it reaches the western limit of a wide range extending east to Labrador. It occurs about Whitemouth Lake, in Sanilands, and Whiteshell Forest Reserves, west to Cedar Lake (Vivian) and north on the east

side of Lake Winnipeg to Norway House, and York Factory, Hudson Bay. In southeastern Manitoba it meets the range of P. m. bairdi.

63. BOREAL WHITE-FOOTED MOUSE. Peromyscus maniculatus borealis (Mearns).

Occurs in Canadian and Hudsonian Zone districts in the western part of the province (eastern and northern limits not precisely known) from about latitude 50°30' N. in a north and northwest direction to the Yukon. To the eastward it intergrades with maniculatus and to the south with osgoodi. It is borealis which inhabits Riding and Duck Mountains and almost certainly, also, Porcupine Mountain.

64. OSGOOD WHITE-FOOTED MOUSE. Peromyscus maniculatus osgoodi (Mearns).

Osgoodi—a very pale race—penetrates the province from the west to points as far east as Spruce Woods Forest Reserve. There are also specimens from Oak Lake. In both localities are undoubtedly intergrades with bairdi and further north individuals begin to approach the characters of borealis. Distribution appears to be in the form of a rather narrow tongue between bairdi and borealis—the eastern extremity of its range; the latter extends westward over an enormous semi-arid and arid territory to the foothills of the Rocky Mountains. Life zone distribution is Upper Sonoran, and sub-humid Transition Zones.

65. BAIRD WHITE-FOOTED MOUSE. Peromyscus maniculatus bairdi (Hoy & Kennicott).

The northwestern limit of distribution of bairdi occurs in extreme southern Manitoba (west of the range of maniculatus) and into southeastern Saskatchewan. Manitoba specimens, undoubtedly referable to Baird's white-footed Mouse, have been collected at Winnipeg, Hobray (Pembina Mountain), Lake Louise, Spruce Woods Forest Reserve, Aweme, and the junction of Antler and Souris Rivers. Green (1932) reports this race plentiful in the prairie (Transition Zone) sections of the southwestern parts of Riding Mountain National Park. This is a dark subspecies normally associated with the Alleghanian, or humid, subdivision of the Transition Zone. On the east it meets the range of maniculatus; on the north, borealis; and on the west, osgoodi.

66. RICHARDSON LEMMING MOUSE. Synaptomys borealis borealis (Richardson).
 Provincial distribution of this mouse undoubtedly coincides with the main coniferous belt of the Canadian Zone. Surprisingly few records exist, the only ones to my knowledge are several examples collected in Sandilands Forest Reserve (Griddle & Soper) and two specimens taken by Preble (1902) at Norway House and Nohimamish River, respectively. Much effort has been spent trapping in boreal zone "islands", southward of the principal Canadian Zone coniferous forests, in an effort to take Synaptomys, but without result. Such "islands" include points 20 to 40 miles east and northeast of Winnipeg; Spruce Woods Forest Reserve; Turtle and Riding Mountains.
67. BACK LEMMING. Lemmus trimucronatus trimucronatus (Richardson).
 In the year 1900, Edward Preble took a large series of trimucronatus near the mouth of Thlewianza River; as this point is quite near the present northern boundary of Manitoba and as the species may well come within this political area, it is included in the present list. In my opinion, further investigations in the Port Churchill-Thlewianza River sector will almost certainly establish a Manitoba record, particularly well north along this Arctic coastline in the vicinity of the 60th parallel of latitude.
68. RICHARDSON COLLARED LEMMING. Dicrostonyx groenlandicus richardsoni Merriam.
 This lemming inhabits the treeless Arctic, or sub-Arctic, coastal belt from a point south of Cape Churchill north over a wide range in the Northwest Territories. It was reported by Preble (1902) as common from Churchill along the coast to the north. In some localities such as at Cape Churchill, and old Fort Prince of Wales, the animals are found in abundance. Subsequent observers have also reported the animals plentiful in the general vicinity of Churchill. It is this lemming which develops heavy claws on the forefeet and turns white during the winter.
69. GAPPER RED-BACKED MOUSE. Clethrionomys gapperi gapperi (Vi-gors).
 Gapperi occurs in eastern Manitoba in the coniferous forests of the Canadian Zone, where it finds its western

limit of distribution. The northern limits of its range to meet the related race, hudsonius, is not at present known, but in the eastern portion of the province it is probably between the parallels of latitude 50 and 56 degrees. It may be found to have a northwest distribution to embrace Duck and Porcupine Mountains and suitable intervening territory. This is a darker form than loringi.

70. LORING RED-BACKED MOUSE. Clethrionomys gappperi lorindi

(Bailey).

This appears to be the prevailing Red-backed Vole throughout south-central and southwestern Manitoba west of the Red River Valley. Specimens have been taken at Winnipeg, North Shoal Lake, Spruce Woods Forest Reserve, Aweme, southwestern shore of Lake Manitoba, Turtle Mountain, junction of Antler and Souris Rivers and southern Riding Mountain. This race is a small pale form of a wide-ranging boreal species which, on the whole, resorts to woods and thickets of the Transition Zone; within this, it lives under rather diverse conditions from Alleghanian mixed woods of the Red River Valley, through aspen groves of the "parklands", to thickets along streams in the semiarid region of southern Saskatchewan, etc.

71. HUDSONIAN RED-BACKED MOUSE. Clethrionomys gappperi hudsonius

(Anderson).

Hudsonius is distributed over a considerable territory of unknown extent in at least the northeastern portion of the province, flanking Hudson Bay, in the Hudsonian Zone. It may be found to occur also in the upper part of the Canadian Zone. It has been taken as far north as Port Churchill and probably ranges to the tree-limit northward of this point. Specimens have also been collected at several points along the northern portion of the Hudson Bay Railway. As yet, very little is known concerning hudsonius in Manitoba and much of its range, probably, has still to be worked out. We do not know how far northwestward it goes, as no specimen of Clethrionomys is apparently extant from the northwestern part of Manitoba beyond a line running from about Churchill to The Pas. There is a possibility that G. l. athabascae ranges from the west into that territory to intergrade with hudsonius. To the northward of Churchill and far northwest along the coast, Clethrionomys does not intergrade with adjacent races of gappperi.

72. DAWSON RED-BACKED MOUSE. Clethrionomys dawsoni dawsoni
Merriam.

In Manitoba occurs, so far as known, only in the extreme northeastern corner where open Arctic tundra prevails. Breckenridge (1936), during the summer of 1935, took specimens of this mouse at Nanola, 80 miles north of Port Churchill. Apparently this is the first record of dawsoni in Manitoba. It is essentially a barren ground form (usually avoiding timber), which occurs north and west to Baker Lake, Great Slave and Great Bear Lakes, north to the Arctic coast and west into the Yukon.

73. DRUMMOND MEADOW MOUSE. Microtus pennsylvanicus drummondi
(Aud. & Bach.).

This familiar mouse ranges over practically the whole of the province from extreme southeast to southwest localities and north into the Hudsonian Zone. It is equally abundant locally in humid parts of the Transition and in the Canadian Zones. It is less common in the semiarid portions of the Transition and in the upper parts of the Hudsonian. Drummondi has been taken at several points along Hudson Bay from York Factory to Fort Churchill.

74. BARREN GROUND MEADOW MOUSE. Microtus pennsylvanicus aphoroides Freble.

The distribution limits of this mouse are not yet fully known, but it occurs along the treeless coast of Hudson Bay from Cape Churchill north into the District of Keewatin. In 1900 Preble (1902) found the animals plentiful at several places along the coast from Cape Churchill to the vicinity of Hubbard Point and they were also abundant near the mouth of Thlewiana River, just over the northern boundary of Manitoba.

75. YELLOW-CHECKED MEADOW MOUSE. Microtus xanthognathus (Leach).

Information on this species in Manitoba is very limited. It is not listed by Seton (1909). Xanthognathus is confined to the boreal region in Canadian and Hudsonian Zones and, to a limited extent, shrubby situations in the Arctic Zone. Preble (1902) points out that it has been taken at Fort Nelson and near the mouth of the Churchill River.

76. LITTLE UPLAND MOUSE. Microtus minor (Merriam).

Found in the south-central and southwestern parts of the province from at least Red River Valley and vicinity, west to Saskatchewan and north to the southern edge of Riding

Mountain. In favourable locations along the western side of the province it may range somewhat farther north. This is a creature of the Transition Zone, inhabiting grasslands in mixed wood situations at its eastern limits and, further west, prairies in the aspen grove belt; locally it occurs even on the treeless Great Plains. The animals are usually found in colonies with well-marked runways.

77. HUDSON BAY MUSKRAT. Ondatra zibethica alba (Sabine).

Alba is considered to inhabit the entire province south to about the southern end of Lakes Winnipeg and Manitoba. To the eastward it intergrades with zibethica; to the south with cinnamomea; and to the west with spatulata. Life zone range is from the Transition, through the full width of the Canadian and in parts also the Hudsonian, as along Hudson Bay south of Churchill River.

78. GREAT PLAINS MUSKRAT. Ondatra zibethica cinnamomea (Hollister).

This paler race is restricted in Manitoba to southwestern localities, including Turtle Mountain (and evidently Pembina Mountain) northward to at least Aweme and Spruce Woods Forest Reserve. Zonal range is humid Transition to the semiarid conditions associated with the Upper Sonoran Zone.

79. NORWAY RAT. Rattus norvegicus (Krøleben).

This introduced species now occurs widely over the southern part of the province. Seton (1909) did not list it in his account of Manitoba mammals. Criddle (1929) lists it as common in the Aweme district and relates that it was first recorded there in 1914. The animals become pests about farm buildings, particularly during the winter months.

80. EUROPEAN HOUSE MOUSE. Mus musculus musculus Linnaeus.

Seton (1909) remarks in relation to this animal in Manitoba: "Introduced with settlers in 1882; now abundant in all towns." It is even more widely dispersed at the present time and is occasionally taken by the collector of native small mammals far removed from any town, or farm buildings. However, they are naturally, as the name implies, normally associated with the habitations of man. Froble (1908) mentions specimens of musculus which were taken at York Factory, Hudson Bay.

81. HUDSON BAY JUMPING MOUSE. Zapus hudsonicus hudsonicus (Zimmerman).

An animal principally of the Canadian Zone, but it

also occupies much of the Hudsonian Zone along Hudson Bay north to at least Port Churchill. It occurs in the coniferous forests of southeastern Manitoba north to Norway House, etc., and it would seem on physiographical grounds that it is this race which inhabits the boreal "islands"—Riding, Duck and Porcupine Mountains. It is also found in smaller, outlying Canadian Zone "islands", as Criddle (1929) lists it for the Aweme-Spruce Woods Forest Reserve district.

82. PRAIRIE JUMPING MOUSE. Zapus hudsonicus campestris Preble.

Roughly speaking, it would appear that campestris occurs only in prairie and semi-prairie tracts in the southern portion of the province from points east of Red River westward into Saskatchewan. In this territory it is thus confined to the Alleghanian and subhumid portions of the Transition Zone. Its northern limits in Manitoba have not yet been worked out. Specimens have been taken 16 miles northeast of Winnipeg; at Gimli; Spruce Woods Forest Reserve; Aweme; Pembina Mountain near Morden; and points to the south. It probably extends in partial grassland areas north to the southern fringes of Riding Mountain.

83. SASKATCHEWAN JUMPING MOUSE. Zapus princeps minor Preble.

Apparently this race extends for a short distance into the southwestern corner of Manitoba from a wide distribution over the Province of Saskatchewan. It is an animal of the semiarid plains and subhumid prairies, ranging for some distance, as well, into the aspen grove belt to the north. Criddle (1929) lists minor from the Aweme district remarking: "Rare. This species has only been taken in the thick prairie grass near the western boundary of the area."

**84. JACKSON JUMPING MOUSE. Nanoezapus incognitus frutetanus Jack
son.**

The first Manitoba record was established by the writer near Caddy Lake, Whiteshell Forest Reserve on May 24, 1935 (1937). This greatly extended its ascertained range northwest from Wisconsin. On May 8, 1937, another example was collected near Cedar Lake (Vivian) which thus further extended the known range of this race to the westward (1938). These are the only records for Manitoba. It is a Canadian Zone form.

85. CANADA PORCUPINE. Erethizon dorsatum dorsatum (Linnaeus).
Occurs in the Canadian Zone from southeastern Manitoba

north to Churchill River and east to Hudson Bay. It is also found in Duck and Porcupine Mountains and west and north to Athabasca and Great Slave Lakes. Criddle (1929) states that it is found in the Aweme district, including Spruce Woods Forest Reserve. Strangely enough, the species is not known to occur on Riding Mountain, though Canadian Zone conditions appear to be ideal.

ORDER LAGOMORPHA

86. AMERICAN VARYING HARE. Lepus americanus americanus Erxleben.
This race is the one found in most parts of Manitoba; in fact, it ranges over the whole of the province, except the extreme south, north to Hudson Bay and the Northwest Territories. The zonal range is locally from semiarid Transition (brushy coulees) north through Canadian and Hudsonian Zones to the limit of trees at the Arctic tundra. It is americanus which occurs on Turtle Mountain, where, in part, boreal conditions prevail.
87. MINNESOTA VARYING HARE. Lepus americanus phaeonotus Allen.
Distribution of this hare in Manitoba has never been fully ascertained. It would appear, however, to inhabit suitable situations throughout a belt of country in the extreme south probably averaging 60 to 70 miles in width (exclusive of Turtle Mountain). It is this form which Criddle (1929) records for the Aweme district, adjacent to and ostensibly including Spruce Woods Forest Reserve. Other records extant are for the Winnipeg area, Selkirk, Carberry, Shoal Lake, and Whitewater Lake. The National Museum of Canada also has specimens from Lake of the Woods and other western Ontario points. phaeonotus is essentially an animal of the western extremity of the Alleghanian subdivision of the Transition Zone.
88. WHITE-TAILED JACK RABBIT. Lepus townsendii campanius Hollis-^{ter}
The Jack Rabbit, or Prairie Hare broadly inhabits practically all of the open plains or prairie districts of southern Manitoba, as well as large areas of aspen grove country. It has been noted east to about Whitewater and St. Anne and is believed to occur still nearer Ontario in a southeast direction from the latter point (It has been recorded (Snyder, 1938) from Ontario, near the town of Rainy River, Lake of the Woods locality). The species ranges north

into the Interlake District and for an undetermined distance north between Lake Manitoba and Riding Mountain. On the western side of the province *canadensis* attains to a higher latitude than elsewhere. In recent times, with expansion of settlement, it has extended its range north and east.

89. HUDDSON RAY ARCTIC HARE. *Lepus arcticus labradoricus* Miller.

In Manitoba these fine hares occur, during the summer, only on the Arctic barren ground coastal strip from about Port Churchill, north. Freble (1902) mentions that "In winter they migrate to a slight extent, reaching the neighbourhood of York Factory and perhaps farther."

90. NEBRASKA COOTAIL. *Sylvilagus floridanus similis* Nelson.

As Seton (1909) does not list the cottontail for Manitoba it is to be assumed that, up to that time, the animal had not entered the province. Since then a gradual spread has occurred with the clearing, or breaking of the land, until now it has reached at least latitude 50° (and locally probably further north) in the southwestern part of Manitoba. Cridde (1929) mentions a single record of one taken about three miles north of Freebank; in the intervening eleven years there has been a further expansion of range to the north and east, but to what extent is not accurately known. Zonal range is chiefly Upper Sonoran, but it also occurs east and north of its centre of abundance as far as the Alleghanian part of the Transition Zone.

ORDER ARTIODACTyla

91. MANITOBA RAVITI. *Corvus canadensis manitobensis* Millais.

In Manitoba, confined to Riding Mountain National Park where most of the animals exist in essentially a wild state. Normal life zone range is Transition and Canadian, the latter being dominant on Riding Mountain. The animals in this area run into several thousands.

92. NORTHERN WHITE-TAILED DUCK. *Oococincus virginianus borealis*

(Miller). According to Seton (1929), the "white-tail" spread into Manitoba about 1880, following settlers; now found wherever there are settlements adjoining woods." *borealis* is now known to range from Whiteshell Lake through Sandlands and Whiteshell Forest Reserve to at least the Winnipeg River and

in suitable localities, to Spruce Woods Forest Reserve (Griddle, 1929) and Riding Mountain (Green, 1932). On geographical grounds it is assumed to be this race which occurs locally in Pembina Mountain, Tiger and Brandon Hills. Whitetailed deer, presumably referable to borealis, have been personally noted as far north as Ruby River, Duck Mountain. To the west it meets the range of macrourus.

93. PLAINS WHITE-TAILED DEER. Odocoileus virginianus macrourus (Baird & Brewer).

Little is precisely known about macrourus in Manitoba, but it formerly occurred over the dry plains of the southwestern sector and in Turtle Mountain; it still inhabits the wilds of the latter district. In primitive times it was distributed over most of the Great Plains region from the Dakotas, Manitoba and Nebraska westward to the Rocky Mountains, ranging north into Alberta and Saskatchewan, and south to New Mexico.

94. MINNESOTA WILE DEER. Odocoileus hemionus virginianus (Hallock).

The apparent range of this race is northwestern Minnesota and, in Manitoba, for an undetermined distance to the north. Under hemionus it is recorded by Griddle (1929) in the Aweme-Spruce Woods Forest Reserve district as now rare, but it was formerly common up to about 1918. Green (1932) mentions the animal as scarce in the Riding Mountain sector. Theoretically it should occur irregularly over a wide area from north of the latter point into the southwestern part of the province, at least, but no personal records have been established eastward of Spruce Woods Forest Reserve, nor does there appear to be any published matter on this particular score. In many districts the Wile Deer has become consistently scarcer of late years, or has totally disappeared, while the same area has been usurped by the Whitetailed Deer. Over most of its range, virginianus would appear to be facing extermination.

95. AMERICAN MOOSE. Alces americanus americanus (Clinton).

This well-known big game animal has an enormous range and in Manitoba still occurs irregularly over perhaps more than half of the entire territory. Its primitive distribution here practically coincided with the whole of the Canadian Zone and it was also found in parts of the Hudsonian Zone. Consequently it inhabited the country from the southeastern corner north and northeast to the vicinity of Hudson

Bay and from Spruce Woods Forest Reserve and Riding Mountain to about the latitude of Reindeer Lake. Its northern limit of distribution has, or had, a trend roughly west from about York Factory. The species was never as abundant in the upper part of its range as in more southern localities. Settlement has naturally worked drastic changes on the local distribution of moose in southern Manitoba, but despite this factor, the animals are still found in greater or lesser numbers even as close to civilization as in the coniferous forests east of Red River; in Spruce Woods Forest Reserve; and Riding and Duck Mountains.

96. WOODLAND CARIBOU. Rangifer caribou caribou (Gmelin).

Ranges in Manitoba from Sandilands and Whiteshell Forest Reserves, in the southeast, northward to about Port Churchill and west and northwest into Saskatchewan and the Northwest Territories. The animals are now scarce in southeastern Manitoba (evidently a few occurring there now only in winter), but it is understood that they are still found locally in good numbers over wide tracts in the northern part of the province. On the western side of the area under consideration the animals range south to at least Porcupine Mountain. Formerly, at least, woodland Caribou were found occasionally even on the "barrens" along Hudson Bay from York Factory to Port Churchill.

97. PLAIN GROUNDS CARIBOU. Rangifer arcticus arcticus (Richardson).

Although a denizen of the Arctic tundras during most of the year, the barren Ground Caribou habitually wanders south in winter and often penetrates deeply into northern Manitoba, as well as the other prairie provinces. In summer a few are occasionally noted on the "barrens" north of Port Churchill. In the winter of 1939-40, unusually large numbers of these animals migrated south to the vicinity of Nelson House—a distance of approximately 290 miles from the northern boundary of the province (Can. Resources Bull., No. 100, March, 1940). With the advance of spring the herds start north again, leave the timber and travel far out upon the Arctic tundras to rear their young.

98. AMERICAN PHONOCERUS ANTELOPE. Antilocapra americana americana (Linné).

Formerly ranged over the grasslands in the southwest and south-central parts of Manitoba east to the Red River plains and north to the Assiniboine River. The animals were

most common in the extreme southwest. Seton (1909) says that it was "last seen on the Souris about 1881." It shortly after became extinct in the province as the land was rapidly brought under cultivation. The nearest Canadian Pronghorns today are found in the Missouri Coteau region of southern Saskatchewan.

99. PLAINS BISON. Bison bison bison (Linnaeus).

In the early days these animals provided the greatest wildlife spectacles to be seen in the west and tens of thousands roamed over the southern Manitoba plains during the summer. A few, at least, are known to have inhabited the region to a point as far north as Moose Lake and the northwest of Lake Winnipeg. Seton (1909) remarks on bison as follows: "Formerly found in great abundance on all the prairies of Manitoba. Last seen wild near Winnipeg in 1819. Last great wild herd on the Souris 1867; the last wild individual on the Souris 1885." Numbers are now kept on a fenced range at Lake Audy, Riding Mountain National Park.

100. BARREN GROUND MUSKOX. Ovibos moschatus moschatus (Zimmermann).

Formerly inhabited the restricted, open tundra area along the Hudson Bay coast in what is now the northeastern corner of Manitoba. Preble (1902) records the occurrence of two animals during the summer of 1897 about mid-way between York Factory and the mouth of Churchill River; this is evidently the most southern authentic record extant. In this Manitoba tundra triangle of the Arctic Zone the Muskox is now extinct and the nearest examples are far away to the northwest.

ORDER CETACEA

101. GREENLAND RIGHT WHALE. Balaena mysticetus Linnaeus.

Preble (1902) remarks in part, as follows, concerning this species: "Formerly found as far south as Churchill River, according to Heerne, who says that three were 'killed there in the course of twenty years....' There appears to be no recent records of this whale off the coast of Manitoba, nor anywhere along the west side of Hudson Bay."

102. WHITE WHALE. Dolphinapterus leucas (Vallias).

This porpoise has frequently been recorded from the west

side of Hudson Bay and specifically from that section of coastline belonging to the Province of Manitoba. Freble (1902) saw the animals from Hayes River northward, where they were common, especially in the mouth of Churchill River. The species still occurs in this region, but evidently in much reduced numbers.

ADDENDA

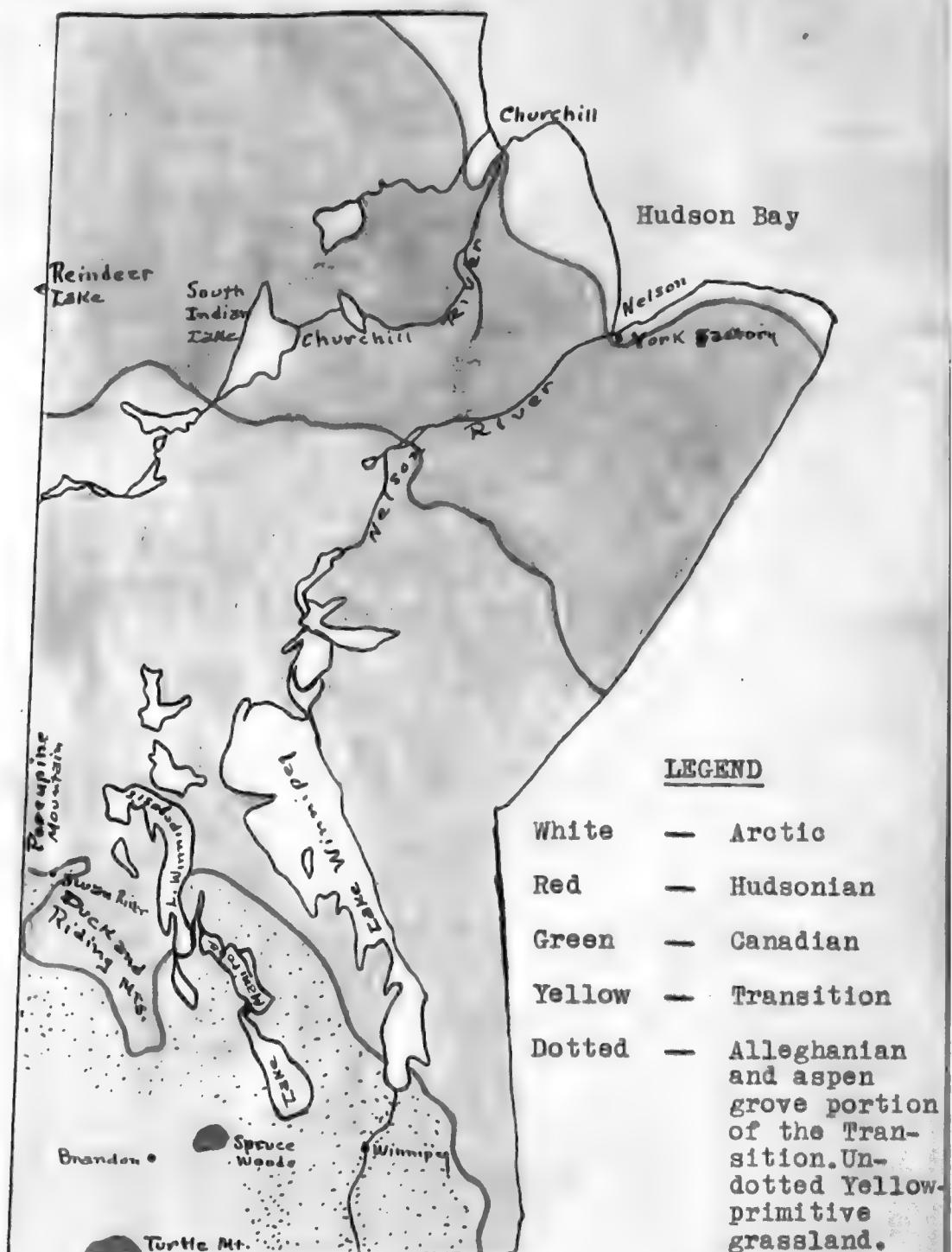
The following species should have been included in the preceding account as No's. 69 and 87, respectively, but were inadvertently omitted at the time of assembling the list:

103. MACKENZIE PHENACOMYS. Phenacomys mackenzii Preble.

The type locality of this animal is at Fort Smith, Slave River, Northwest Territories. Its geographic distribution is east of the Rockies in Alberta, north almost to Great Bear Lake and across the northern part of Manitoba (presumably for the most part in the Hudsonian zone) to Hudson Bay. It is not listed by Seton in his work of 1909. Extremely little is known about the species in Manitoba. In fact, the only records extant, so far as I am aware, are three specimens from Churchill, Hudson Bay, which were collected by Preble, July 26-28, 1900.

104. YELLOW-HAIRED PORCUPINE. Erethizon epixanthum bruneri Swenk.

This is an animal of the Upper Sonoran and semiarid Transition Zones and in Canada occurs somewhat commonly on the Missouri watershed of southern Saskatchewan and Alberta. From records available, it would appear rare, or at least very scarce, east of that territory. Porcupines sparingly inhabit Turtle Mountain, Manitoba. None has been personally observed in that district, but there is some likelihood that the "yellow-haired" is the animal which occurs. Bailey (1926, p. 114) says under epixanthum that a specimen taken in Turtle Mountain of North Dakota, in 1914, proves to be the yellow-haired variety which "marks the easternmost authentic locality for the species." Dr. Anderson refers the yellow-haired porcupines of the southern part of the Prairie Provinces to the race bruneri. Mr. Morris-Elye informs me that the Manitoba Museum has a specimen of the yellow-haired variety from Lauder, Manitoba, which is 27 miles north of the International Boundary and 19 miles east of the Saskatchewan border; the specimen has no skull; it is assumed to belong to the subspecies under discussion. So far as known, this is the only Manitoba specimen extant, though the animal has several times been seen in the southwestern part of the province. Mr. Stuart Griddle says in a letter to Mr. Morris-Elye (July 12/39) that a yellow-haired porcupine was seen near Belmont, Tiger Hills, and another along the Assiniboine River three miles west of Aweme.



FAUNAL LIFE ZONE SKETCH MAP
OF THE PROVINCE OF MANITOBA.

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